

## FLUKE 112 / 115 TRUE RMS MULTIMETER Quick Start Guide

The Fluke 112 / 115 is a multimeter (volt-ohm-milliammeter, or VOM, in some references) designed for basic circuit measurements. Instrument settings are accessed via the main dial on the front. The positions (which vary somewhat between the models) are (**bold** represents the ones we'll use the most):

### OFF: instrument off

*Return the dial here when you are finished using the meter.*

V $\sim$ : measures AC voltage (voltmeter)

**V==**: measures DC voltage (voltmeter)

mV: measures small DC voltages, with higher accuracy

**$\Omega$** : measures resistance (ohmmeter)

*Note: the ohmmeter setting should **never** be used on an energized circuit! It is only used to measure the resistance of de-energized resistors. At best, measuring an energized component will give incorrect values. At worst it will blow a fuse inside the meter.*

•)): continuity tester (audible ohmmeter).

*This is useful for detecting short/open circuits; the system beeps when low resistance is encountered, so you can check many connections without looking at the display.*

→|: Diode tester. (We will discuss this later.)

A $\sim$ : measures AC current (ammeter)

**A==**: measures DC current (ammeter)

→|): measures capacitors

*This works similarly to the ohmmeter setting, and should only be used on a de-energized component. Just as the ohmmeter measures resistance values, this gives capacitance values.*

Hz: frequency meter – determines the frequency of an AC signal.

Other buttons:

HOLD: holds the current displayed value on screen. (Useful for copying values into your notes!)

RANGE: selects between auto-range and manual range selection

“Orange” button: used to select “orange” options on dial.

MIN MAX: display the minimum, maximum, or average values of the present measurement.

“sun” symbol: turns on display backlight



To use the meter, you connect two cords (one red and one black) to the bottom terminals as follows:

Black cord: always goes to the COM connector (center)

When measuring voltage, resistance, diodes, capacitors, resistance or frequency (everything but current!), connect the red cord to the "V  $\Omega$ " (etc.) terminal at right. When the red cord is in this position the meter should always be connected IN PARALLEL (i.e. across, not in line with) what you are trying to measure, and the dial should *never* be on one of the "A" positions.

When measuring current (and current only!) connect the red cord to the "A" terminal at left. When the meter is connected in this fashion, it should be connected IN SERIES (i.e. in line with) what you are trying to measure, and the dial should be on one of the "A" positions.

There are four types of lead tips you can use, depending on preference:

"banana plugs" – tubular metal end, good for plugging into other devices

"probes" – pointy metal ends, good for poking around into circuits

"alligator clips" – grab on to what you want to measure (probably have very few of these)

"hook leads" – a springloaded hook that latches on to what you want. Better than alligator clips in tight spaces.

The LCD display contains information about:

- what is being measured (volts, amps, ohms, farads, hertz; DC, AC),
- range settings being used (auto, or manual and the present range setting),
- display settings (Hold, Min, Max, Avg),
- instrument settings (e.g. low battery warning), and
- a bar graph along the bottom which gives a quicker (but less accurate) readout of measured values.

*If you want to see every symbol displayed at once, press the "HOLD" button as you switch the meter on.*

For further information, there are a number of manuals on the cart next to the meters.